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- (g) determining if any segment was received in error; \
 - (h) correcting the error according to the forward error correction encoding, if possible; and
 - (i) requesting retransmission only of the segment received in error and unable to be corrected.
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REMARKS

Claims 1-12 are pending in the application. Claims 1-12 were rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claims 1-19 of U.S. Patent Number 6,236,647 ("Amalfitano"). Claims 1-8 were rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent Number 5,781,542 ("Tanaka et al."). Claim 1 is being amended. No new matter has been introduced.

Before responding to the rejections, the Applicants believe that a brief description of the claimed invention may be useful. As recited in claim 1, a method is provided for communication of data between a transmitter and a receiver over one or more communication channels. The data is provided in a frame.

At the transmitter, the frame is divided into segments according to an optimum segment size, and multiple segments are combined into a segment block. A forward error correction encoding process is applied to the segment block to produce a forward error correction block, and the forward error correction block is sent over a communication channel to the receiver.

At the receiver, the reverse process takes place. Following the reverse process, a determination is made as to whether any segment has been received in error. If there are errors, they are corrected using the forward error correction encoding, if possible. If the errors cannot be corrected, the receiving system requests retransmission only of the segment(s) received in error.

Referring now to the double patenting rejection, the Applicants respectfully point out that Amalfitano does not teach forward error correction, and, specifically, does not teach "applying a forward error correction encoding process to the segment block to produce a forward error correction block," as recited in Part (c) of claim 1 as originally filed or "correcting the error according to the forward error correction encoding, if possible," as recited in part (h) as amended.

Although Amalfitano teaches the use of Cyclic Redundancy Check Codes (CRC) to discard and count bad subframes, CRC codes are inserted into the data only to determine whether

the data was properly received. CRC codes cannot be used to correct the data at the receiver.

Thus, because forward error correction was not taught by Amalfitano, the claims of the present application could not have been claimed prior to the Applicants' teachings. Therefore, the Applicants respectfully submit that the double patenting rejection is improper and should be withdrawn.

Referring now to the rejection under 35 U.S.C. 102(e), the Applicants believe that a brief discussion of Tanaka et al. may be useful. At Col. 2, lines 42-48, Tanaka et al. teach a system that "adaptively variably sets both the number of used spread codes and . . . modulations . . . as to always obtain optimum transmitting quality and speed." To obtain optimum transmitting quality and speed, as shown in Figs. 2, 4, 5, of Tanaka et al. and discussed at least in the abstract at lines 3-5, the transmission information is divided into a number of sequences equal to the number of used spread codes. It should be noted that the term "sequences" appears to correspond to the term "segments" of the Applicant's specification and claims.

The Tanaka et al. transmission system does not, however, include a component for "combining multiple segments into a segment block," as recited in part (b) of claim 1 as originally filed. Instead, Tanaka et al. encode the sequences individually using individual channel encoders 111-11m, as shown in Fig. 2 and discussed in reference thereto at Col. 4, lines 9-12. Further, the Applicants find no teaching by Tanaka et al. at Col. 10, lines 5-8 with respect to "combining multiple segments into a segment block."

Accordingly, because Tanaka et al. do not teach every claim limitation of Applicants' claim 1 as originally filed ("combining multiple segments into a segment block"), the Applicants respectfully submit that the rejection under 35 U.S.C. §102(e) is improper and should be withdrawn.

Because claims 2-12 depend from claim 1, these claims should also be allowed.

In addition, as recited in claim 3, the Applicants insert "a position number into the segments to identify a position of the segment within the frame." The Applicants find no such teaching by Tanaka et al.

CONCLUSION

In view of the above amendments and remarks, it is believed that all claims (claims 1-12) are in condition for allowance, and it is respectfully requested that the application be passed to issue. If the Examiner feels that a telephone conference would expedite prosecution of this case, the Examiner is invited to call the undersigned at (978) 341-0036.

Respectfully submitted,

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MARKED UP VERSION OF AMENDMENTSSpecification Amendments Under 37 C.F.R. § 1.121(b)(1)(iii)

Replace the paragraph at page 19, lines 3 through 7 with the below paragraph marked up by way of bracketing and underlining to show the changes relative to the previous version of the paragraph.

At this point, if any piece of the large frame 80 is still [miss] missing such as when an end of frame command is encountered, retransmission of the corresponding segment 81 can be requested at the indicated position, specifying a length for the missing piece.

Claim Amendments Under 37 C.F.R. § 1.121(c)(1)(ii)

1. (Amended) A method for communication of data between a transmitter and a receiver over one or more communication channels, the data being provided in a frame, the method comprising the steps of:

at the transmitter:

- (a) dividing the frame into segments according to an optimum segment size;
- (b) combining multiple segments into a segment block;
- (c) applying a forward error correction encoding process to the segment block to produce a forward error correction block;
- (d) sending the forward error correction block over a communication channel;

at the receiver:

- (e) applying a forward error correction decoding process on the forward error correction block to produce a received block;
- (f) dividing the received block into segments
- (g) determining if any segment was received in error; [and]
- (h) correcting the error according to the forward error correction encoding, if possible; and
- [(h)] (i) requesting retransmission only of the segment received in error and unable to be corrected.